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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------------------|------------------|
| 10/722,812 | 11/26/2003 | Se-Hwan Son | MUTU15.001AUS | 8128 |
| 30827 7590 01/22/2007 MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006 | | | EXAMINER YAMNITZKY, MARIE ROSE | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1774 | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
| 3 MONTHS | | 01/22/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/722,812

Applicant(s)

SON ET AL.

Examiner

Marie R. Yamnitzky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42, 45 and 46 is/are pending in the application.
- 4a) Of the above claim(s) 31-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30, 41, 42 and 45 is/are rejected.
- 7) ☒ Claim(s) 46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>rec'd 03 Nov 2006</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. This Office action is in response to applicant's amendment filed November 03, 2006, which amends claims 9, 10, 23, 26, 28, 41 and 46, and cancels claims 43 and 44.

Claims 1-42, 45 and 46 are pending.

2. This Office action is also in response to the Terminal Disclaimer and Information Disclosure Statement filed November 03, 2006.

3. Claims 31-40 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in the reply filed on February 13, 2006.

4. The terminal disclaimer filed on November 03, 2006, disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,720,573, has been reviewed and is accepted. The terminal disclaimer has been recorded. Accordingly, the obviousness-type double patenting rejection set forth in the Office action mailed May 05, 2006 is overcome.

5. The rejection of claims 9-11 under 35 U.S.C. 112, 2nd paragraph, as set forth in the Office action mailed May 05, 2006 is overcome by claim amendment.

The rejection of claims 43 and 44 under 35 U.S.C. 112, 2nd paragraph, is rendered moot by claim cancellation.

The rejection of claims 16, 19-22, 26-30, 41, 42 and 45 under 35 U.S.C. 112, 2nd paragraph, is withdrawn in consideration of applicant's arguments. The claims will be given their broadest reasonable interpretation. The term "comprises" is open so a component claimed as comprising a material with a specified property may or may not have that property, dependent upon the properties of additional materials comprised by the component. For example, an anode that comprises a transparent material is not necessarily a transparent anode if the anode also comprises a material that is not transparent. The term "substantially" in the phrases "substantially all", "substantially reflective" and "substantially equal" is interpreted as allowing for some variation, with no specific limitation placed on the variation.

The rejection of claim 23 under 35 U.S.C. 102(b) as anticipated by Ueno et al. (US 6,436,559 B1) as evidenced by Tang et al. (US 4,769,292) is overcome by claim amendment.

The rejection of claims 41, 42 and 45 under 35 U.S.C. 102(b) as anticipated by Namiki et al. (US 5,457,565) is overcome by claim amendment.

The rejection of claim 46 under 35 U.S.C. 102(b) as anticipated by Egusa et al. (US 5,294,810) is overcome by claim amendment.

The rejection of claim 46 under 35 U.S.C. 102(e) as anticipated by Gupta et al. (US 6,963,081 B2) is overcome by claim amendment.

The rejection of claims 43 and 44 under 35 U.S.C. 103(a) as unpatentable over Son et al. (WO 01/49806 A1) in view of Tang et al. (US 4,769,292) is rendered moot by claim cancellation.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 10, 12, 13, 15-17, 19-22 and 25 stand rejected under 35 U.S.C. 102(b) as being anticipated by Ueno et al. (US 6,436,559 B1) as evidenced by Tang et al. (US 4,769,292) for reasons of record in the Office action mailed May 05, 2006 and the additional reasons set forth below with respect to claims 21 and 22.

Claims 26, 27, 29, 30, 41, 42 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Ueno et al. (US 6,436,559 B1) as evidenced by Tang et al. (US 4,769,292) as applied to claims 1, 2, 10, 12, 13, 15-17, 19-22 and 25 for reasons of record in the Office action mailed May 05, 2006 and the additional reasons set forth below.

Claim 26, with claims 27, 29 and 30 dependent therefrom, have limitations that are similar to those of claims 21 and 22. Anode materials disclosed in column 23 of the patent to Ueno et al. include materials within the scope of a substantially reflective material as taught in the disclosure of the present application.

With respect to claim 41, with claims 42 and 45 dependent therefrom, ITO is taught as a suitable material for the anode and the cathode in column 23 of the patent to Ueno et al.

8. Claims 1-10, 12-17 and 25 stand rejected under 35 U.S.C. 102(b) as being anticipated by Son et al. (WO 01/49806 A1) as evidenced by Tang et al. (US 4,769,292) for reasons of record in the Office action mailed May 05, 2006.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-30, 41, 42 and 45 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Son et al. (WO 01/49806 A1) in view of Tang et al. (US 4,769,292) for reasons of record in the Office action mailed May 05, 2006.

11. Applicant's arguments filed November 03, 2006 have been fully considered but they are not persuasive.

Applicant argues that the prior art does not teach an anode comprising a material having a work function not greater than about 4.5 eV as recited in claim 1. Applicant argues that the Office action concludes that because elemental indium and elemental tin each have a work

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function lower than 4.5 eV, the ITO anode of Ueno et al. and Son et al. must have a work function lower than 4.5 eV.

The examiner respectfully disagrees with what applicant purports to be the Office action conclusion. In the Office action mailed May 05, 2006, the examiner pointed out that the rejected claims "do not require the anode, as a whole, to have a work function not greater than 4.5 eV". Claim 1 merely requires the anode to comprise a material having a work function not greater than 4.5 eV. Indium is a material having a work function not greater than 4.5 eV. Tin is a material having a work function not greater than 4.5 eV.

Even if the claims were to be amended to require the anode to have a work function not greater than about 4.5 eV, Ueno et al. would still anticipate the device of claim 1 and some of the claims dependent therefrom. As noted in the Office action mailed May 05, 2006, Ueno et al. also teach that the anode may be made of nickel, cobalt or vanadium alone. An anode made of any one of these three metals alone would have a work function not greater than about 4.5 eV as evidenced by Tang et al. Applicant's arguments do not address Ueno's disclosure of nickel, cobalt or vanadium as an anode material.

Further with respect to the rejection under 35 U.S.C. 103(a) based on Son et al. in view of Tang et al., applicant's arguments do not appear to take into account Tang's teachings of anode materials having a work function with a range (greater than 4 eV) that overlaps the range (not greater than about 4.5 eV) for the work function of the anode material of the present claims. Anode materials taught by Tang et al. that have a work function in the range of 4-4.5eV are within the scope of the material for the anode as required by present independent claim 1.

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12. Claim 46 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 7:00 a.m. to 3:30 p.m. Monday-Friday.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY
January 18, 2007



MARIE YAMNITZKY
PRIMARY EXAMINER

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